

Confronting Wildlife Crime In India: Challenges And Pathways To Effective Implementation

Dr Shalini Saxena¹, Anurag Sharma², Pallavi Chhabaria³, Prof. Dr. Ashish Verma⁴, Priyanka Mangaraj⁵, Ramendra Pratap Singh⁶

¹Associate Professor-SRM University Sonapat

²Assistant Professor IMS Unison University, Dehradun

³Research Scholar (UPES, Dehradun), Assistant Professor Presidency University, Bangalore

⁴Professor & Dean IMS Unison University Dehradun

⁵Assistant Professor- Presidency University, Bangalore

⁶Assistant Professor- IMS Unison University, Dehradun

Cite this paper as: Dr Shalini Saxena, Anurag Sharma, Pallavi Chhabaria, Prof. Dr. Ashish Verma, Priyanka Mangaraj, Ramendra Pratap Singh (2024). Confronting Wildlife Crime In India: Challenges And Pathways To Effective Implementation. *Frontiers in Health Informatics*, 13 (8) 3843-3853

Abstract

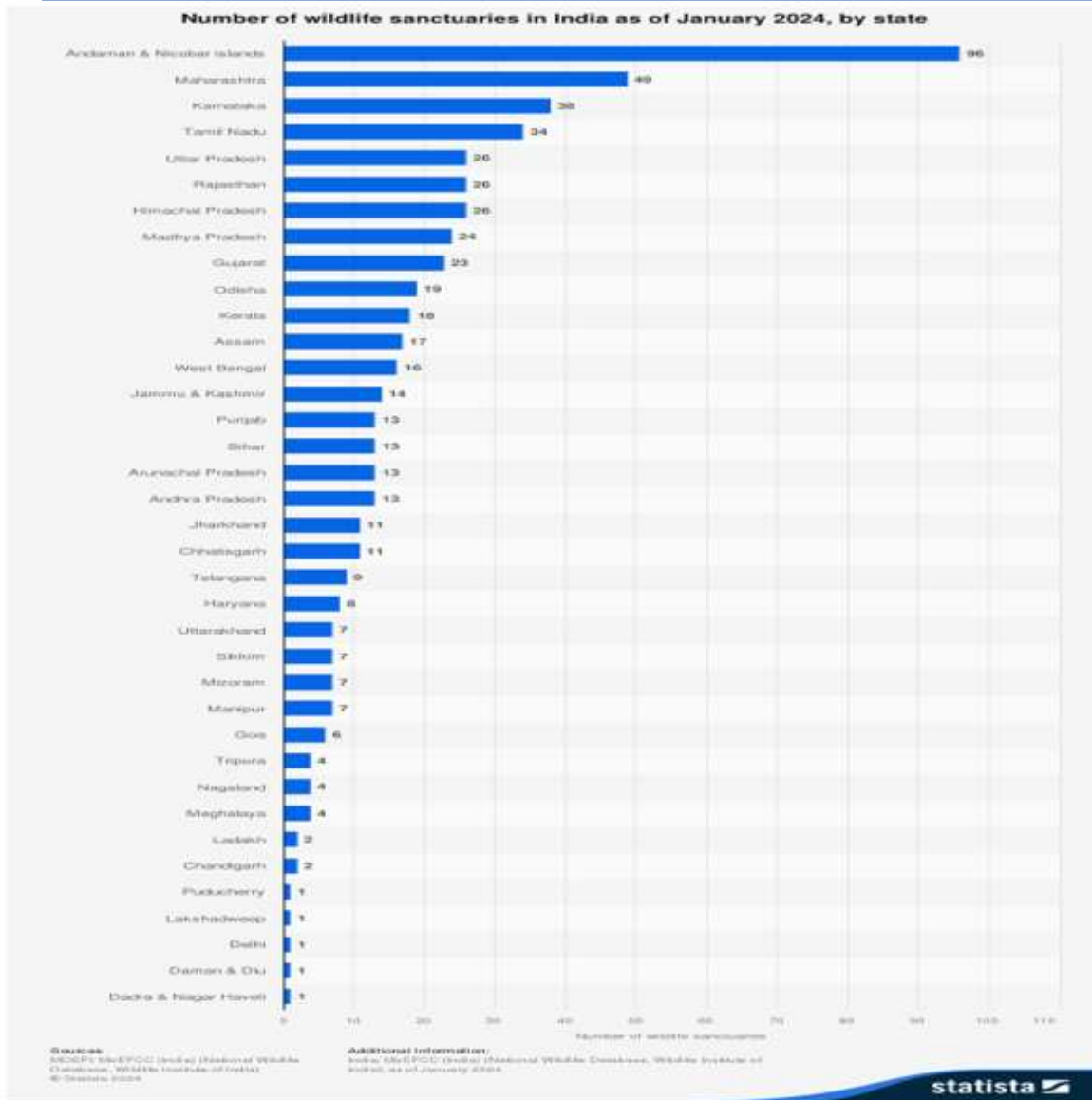
Wildlife crime in India has become a significant threat, endangering biodiversity and undermining the country's efforts for conserving its rich ecological heritage. Despite having well established legislations including the Wildlife Protection Act of 1972 and international treaties such as CITES, there is a lack in effective implementation of wildlife protection laws. There still persist significant barriers in the implementation of these legislative frameworks which pose a threat to many wildlife species in India. These barriers include systematic corruption, wildlife trafficking, procedural insufficiencies as well as transnational nature of wildlife crime. Socio economic factors including poverty and lack of awareness also contribute to this issue, as they become inadvertently participants in illegal activities.

This paper focuses on these challenges, delving into legal loopholes, enforcement gaps as well as institutional challenges. It also highlights the need for using technological innovations such as AI surveillance, forensic tools and drones along with capacity building and enhanced training by enforcement agencies. The role of community engagement along with alternative livelihoods is emphasized to be a sustainable approach for deterring local participation in wildlife crimes. There is a need for inter-agency coordination as well as international collaboration for tackling organized, transnational networks which promote wildlife trafficking. The paper has additionally, also emphasized upon the need for a uniform international legal framework focusing upon the current legal loopholes and enforcement gaps to deter transnational wildlife crime.

Keyword: *Wildlife crime, CITES, Sustainable, Wildlife Protection Act, Forensics*

Introduction

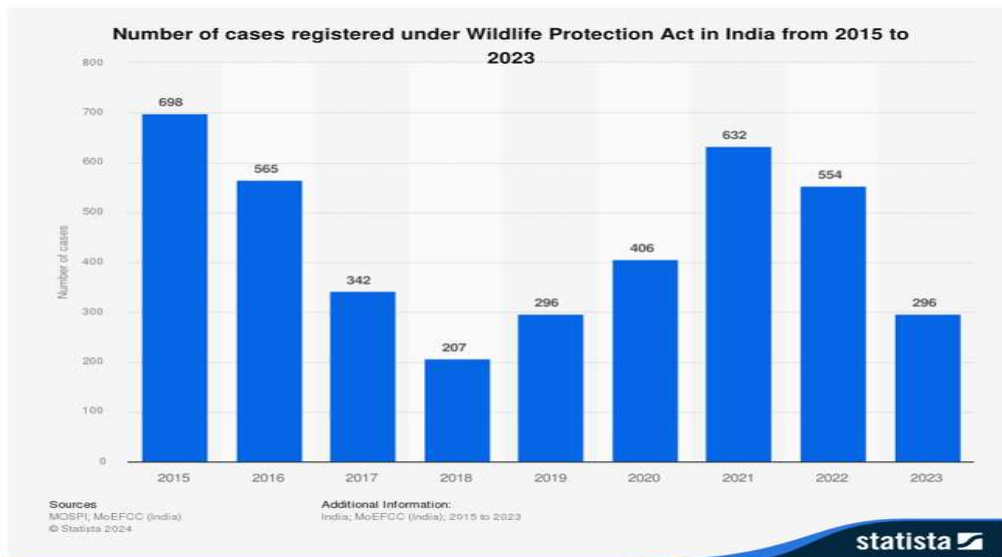
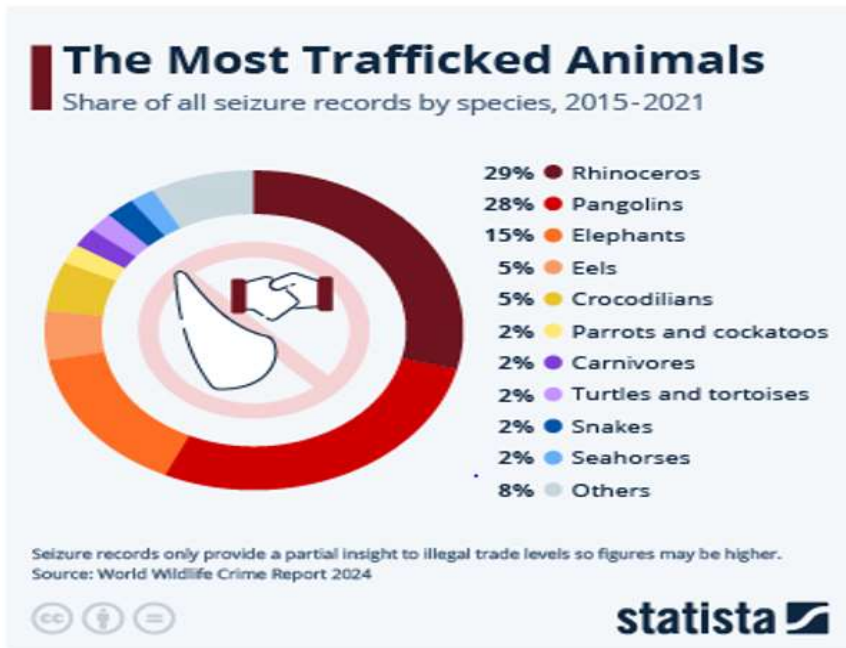
India's rich biodiversity, encompassing a vast array of flora and fauna, is not only an ecological treasure but also a crucial part of the country's cultural heritage and economic stability. As of 2024, India has 553 wildlife sanctuaries spread across various states, with the Andaman & Nicobar Islands hosting the highest number at 96.



This biodiversity provides essential ecosystem services such as carbon sequestration and water regulation, while also supporting livelihoods for millions.

However, India's biodiversity faces significant threats from wildlife crime, which has evolved into an organized and lucrative enterprise. Poaching and illegal trade of animals like elephants, tigers, and star tortoises for their body parts, used in traditional medicine and luxury goods, are major concerns¹.

The economic impact of this biodiversity loss is substantial, with 33% of India's economy being highly reliant on ecosystem services. Despite these challenges, India has made efforts to protect its wildlife. The Wildlife Protection Act, enacted in 1972, has seen a reduction in registered cases from 698 in 2015 to 296 in 2023. Projects like "Project Tiger" have also shown success, significantly increasing the tiger population.



However, recent legislative changes, such as the Forest Conservation Amendment Act, have raised concerns among environmentalists about potential negative impacts on ecosystems and biodiversity.

India has always been known for its rich biodiversity, having a variety of flora and fauna, where many are getting endangered or extinct. This rich biodiversity does not only represent the ecological treasure of the country but is also an important part of the cultural heritage as well as economic stability of the country. It provides ecosystem services such as carbon sequestration, water regulation as well as livelihoods for millions. But with increase in wildlife crime, there is

a threat to the ecosystem and also the balance they maintain.² Wildlife crime today, has become an organized crime and has developed as a lucrative enterprise. Poaching, illegal trade along with poaching of animals have all led to depreciation of ecosystems resulting in harming the cultural heritage of the country. Species including elephants, tigers, star tortoises are mainly used for their body parts, that are valuable for various purposes including traditional medicinal uses and luxury purposes. Further, India's geographical location also poses a challenge and is a major hub and destination for wildlife trafficking. This demand for wildlife products is both because of domestic consumption as well as global black markets. Further organized crime syndicates also use people belonging to poor communities for these operations. To counter this challenge, India has enacted a robust legal framework which deals with tackling wildlife crime. The Wildlife Protection Act, 1972, is a major legislative framework which focuses upon protecting the species, creating protected areas along with regulating trade. The act also covers the protection of wildlife in National Parks and Sanctuaries. Moreover, India is also a signatory to many International and regional treaties including Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), which commits towards the protection of wildlife.³ Despite these robust legislative frameworks there is an increase in wildlife crime posing a daunting challenge for the country. Significant gaps in the current legislative framework along with other logistical, systematic and socio-economic factors have led to the increase in these crimes and need to be addressed.⁴

Understaffed forest department, outdated monitoring equipment along with resource constraints all are factors contributing in the increase of wildlife crimes. Furthermore, corruption also plays a significant role in the increase of such crimes. There are still gaps in the enforcement laws which are weakening the system. There is a need to increase the conservation efforts along with more participation in regional collaborations to combat these crimes. Socio-economic factors also need to be addressed while making laws for wildlife conservation in order to effectively implement these laws.

This paper makes an in-depth analysis of all these challenges, highlighting upon the operational as well as structural barriers which create an obstacle in the effective implementation of these laws. The paper also explores upon the potential solutions, along with modern technology, strengthening of inter-agencies and international cooperation. Addressing the issue of wildlife requires a comprehensive strategy which focuses on balancing education, economic development and innovation in order to secure sustainable conservation of biodiversity.

Wildlife Crime in India: An Overview

India, due to its geographical location has become a destination and a hub for wildlife crimes. Crimes including poaching, trafficking, habitat destruction as well as illegal trade have been increasing at a significant level.⁵ With increase in demand both domestically as well as internationally, wildlife crimes have become more organized and sophisticated, making it a significant challenge for law enforcement agencies to tackle it.

India with its rich biodiversity is a home to variety of species including Indian elephant, Bengal Tiger, one-horned rhinoceros, snow leopard and many others, which are traded and used for their body parts.⁶ With increase in the use of their body parts for various medicinal and other purposes, wildlife has become a prime target for criminals for their crimes. For example, elephant tusks are used for ivory ornaments, pangolin scales are used for their medicinal qualities, tiger bones are used for medicinal purposes.⁷ Further, exotic species like freshwater turtles, star tortoises as well as other

² M. Anagnostou, and B. Doberstein, "Illegal wildlife trade and other organised crime: A scoping review" 51 *Ambio* 1615–1631 (2022). <https://doi.org/10.1007/s13280-021-01675-y>

³ A.K. Rana and N. Kumar, "Current wildlife crime (Indian scenario): major challenges and prevention approaches" 32(5) *Biodivers Conserv.* 1473-1491 (2023). doi: 10.1007/s10531-023-02577-z. Epub 2023 Mar 20. PMID: 37063172; PMCID: PMC10025790.

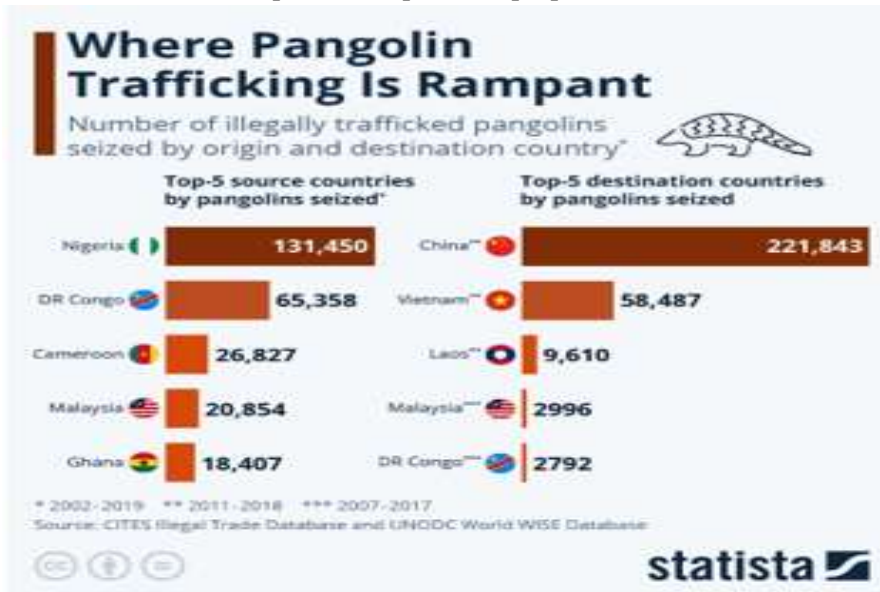
⁴ *Ibid.*

⁵ K. Nishant, K. Y. Vrijesh et. al., "Wildlife forensic: current techniques and their limitations" 5(4) *J Forensic Sci Criminol* 402 (2017).

⁶ *Supra* note 2 at 1480.

⁷ *Ibid.*

exotic birds are also exploited for pet trade purposes.



China has been a leading destination for pangolin trafficking, with 221,843 seizures between 2011 and 2018. However, recent efforts to combat wildlife crimes include Beijing's 2023 revision of its Wildlife Protection Law, expanding the list of protected species.⁸

Apart from this various other socio-economic factor including poverty, urbanization, infrastructure development, agriculture also contribute in increase of these crimes. The increase in proximity between humans and wildlife has also given poachers an opportunity to exploit wildlife.

This illegal wildlife trade is not limited to the local markets of India, but are also being traded globally. India has become a source and a transit point for trafficking wildlife products in other countries including China, Southeast Asia, US and Europe.⁹ This transnational wildlife crime makes it difficult to tackle these crimes and it becomes difficult to punish the offender due to jurisdictional issues and involvement of multiple agencies.

To combat these crimes there is a need for a more uniform international legislative framework focusing on these gaps and challenges. Though we have Wildlife Protection Act, 1972 along with other international treaties such as CITES, there is still a need to have a strong robust legislation both at national and international level which focuses on combating these crimes. There is a need also for regional collaborations between countries making it easier for the law enforcement agencies to punish the offenders. Further use of new technological technics including drones and forensic science can also be made a part of these legislations for tackling these crimes.

Specialized agencies such as Wildlife Crime Control Bureau (WCCB) can also be given more powers and jurisdiction to investigate as well as prevent these crimes. Formation of strict laws and adherence to them is the what is required for combating wildlife crime.¹⁰ The country is host to various threatened species such as the Bengal tiger, Indian elephant, snow panther, and one-horned rhinoceros, most of which are hunted for their body parts. For instance, the bones of tigers are used in traditional medicine, the tusks of elephants are used for ivory ornaments, and the scales of the pangolin are sold for their medicinal properties. In addition, species such as star turtles, freshwater turtles, and exotic birds are also

⁸Anna Fleck, Where Pangolin Trafficking Is Rampant (Statista Inc.) (2024), <https://www.statista.com/chart/17663/number-of-illegal-pangolins-seized-by-origin-and-destination-country/> (last visited January 20, 2025)

⁹Aadithya R Chandran, "Wildlife Crime in India: A multifaceted Analysis" 1(2) *ILE Monthly Review* 38-45 (2023).

¹⁰ S. Ghosh, India Profiling Criminals to combat Transboundary Wildlife Offences (2019) available at: [https://: India profiling criminals to combat transboundary wildlife offences.](https://india-profiling-criminals-to-combat-transboundary-wildlife-offences)

exploited for the pet market.

India shares borders with Nepal, Myanmar and Bangladesh, which are the major trade routes for wildlife trafficking.¹¹ Being a part of these smuggling routes India becomes a hub for wildlife crimes. Guwahati and Dimapur are considered as the major transit points for wildlife trafficking. Moreover Mumbai, Kolkata and Chennai airports also used extensively for smuggling of macaws and parakeets. Recent reports have shown that there is an average of 12 wildlife seizures every week in the country.

Wildlife trafficking has become an industry of \$7-23 billion globally making it an incentive for black market.¹² The economic incentives coming out of these crimes have made it more attractive to criminals. Further, with the advancement of technology it has become more difficult to identify these criminals and detect their activities. Jurisdictional issues also make it a challenge for the law enforcement agencies to detect wildlife trafficking and identify criminals.

To combat these offences there is a need for implementing a multi-pronged approach, including regional cooperation, community engagement as well as technological advancements are required. Collaborative efforts of the neighboring countries can help in reducing smuggling of wildlife species. Local communities also can be empowered by the government to combat wildlife crime at the grassroot level. These communities can be empowered and can be given other opportunities for their earning, so that they don't resort to poaching for their income. There is a need for persistent vigilance and international cooperation for safeguarding India's rich biodiversity.¹³

The sophistication and organization of these crimes these days outpaces our available resources and also the capabilities of the enforcement agencies. Traffickers and poachers use advance technology such as counterfeit permits along with encrypted communication for evading detection. Further, the enforcement agencies and many forest departments run low on manpower and are not having adequate funding for getting advanced equipment.

Addressing wildlife crimes requires a more stringent approach. It requires a multifaceted approach involving community engagement, public awareness, international collaboration as well as technological innovation.¹⁴ Without including these measures India is under a threat of loosing its biodiversity, making many species endangered and extinct. It will also lead to ecosystem disruption as well as undermining global conservation goals.

Regional Cooperation

Regional cooperation plays a significant part in combating transboundary wildlife crime. As this crime occurs across borders involving multiple countries, there is a need for a strong regional legislative framework. Initiatives such as South Asian Wildlife Enforcement Network (SAWEN) have proven to be essential in combating wildlife crime but still, there are certain enforcement gaps and challenges which are needed to be addressed for tackling these crimes.¹⁵ Through joint initiatives and capacity building programs, we can enhance the ability of law enforcement agencies to detect, apprehend and prosecute criminals who are exploiting the biodiversity by smuggling endangered species across borders.

Apart from SAWEN, India has also entered into various unilateral as well as multilateral agreements with bordering countries for addressing wildlife crime. These include agreement between India, Nepal, Myanmar and Bangladesh for reducing poaching of tigers as well as rhinoceros. These agreements can help in establishing joint mechanisms for patrolling, coordinated action on wildlife crimes and real-time intelligence. They also facilitate in creating protected corridors which are spread across borders, making it easy for the wildlife to migrate easily and also reducing the likelihood of exploitation of biodiversity by tackling traders.¹⁶

¹¹ *Ibid.*

¹² *Ibid.*

¹³ Anusha Krishnan, [\[Explainer\] Why is India a major hub for wildlife trafficking?](#) (2022) available at: [https://: \[Explainer\] Why is India a major hub for wildlife trafficking?](https://: [Explainer] Why is India a major hub for wildlife trafficking?)

¹⁴ *Ibid.*

¹⁵ *Supra* note 7 at 39.

¹⁶ C.P. Sharma CP et. al., "Online selling of wildlife part with spurious name: a serious challenge for wildlife crime enforcement" 133 *Int J Legal Med* 65-69 (2019). <https://doi.org/10.1007/s00414-018-1795-7>

These bilateral and multilateral agreements play an important role in addressing the various complexities posed by wildlife crime, and can help in detecting criminals. These criminals can also address the gap of enforcement of laws across jurisdiction.

Current Trends

Wildlife crime being a profit earning crime with very less risk has taken a form of an organized crime which is a major threat for the countries. With many species on the verge of extinction and being endangered these crimes can lead to destruction of biodiversity. According to a recent study and data available at WCCB, which is a crime investigation agency of India for wildlife crime, more than 9253 poachers have been arrested in India between 2016-2021, but the conviction rate was just 2%.¹⁷ According to NCRB 2014-2021 report,¹⁸ there are seven states where the cases of wildlife crimes have been highest. These states include Maharashtra, West Bengal, Karnataka, Uttar Pradesh, Rajasthan, Assam and Madhya Pradesh.¹⁹

Although the numbers have decreased in the last 8 years but still the numbers of cases are alarming and need to be addressed. In the past three years, the government has seized at least 100 turtles on an average every day. Between 2019-2022, over 2000 cases were registered of wildlife crime involving wildlife trafficking and poaching.²⁰ There is significant difference between the number of cases registered and number of people arrested for committing wildlife crime. For instance, in the year 2021, the ratio between number of cases registered and the number of people arrested was 601:1231, which shows that these crimes are committed mostly by organized groups.²¹ Since, 2020 there has been a significant increase in the trafficking of exotic species including Galapagos tortoise, red kangaroo, blue macaws and capuchin monkey.²² These exotic species are mostly traded from Lailapur in Assam and for which there has been no provision under the Wildlife Protection Act, 1972.²³ Smugglers generally use amnesty routes for smuggling these species in India for money. According to the data given by TRAFFIC-India, more than 70,000 exotic species of animals have been trafficked in the last 10 years.²⁴ These species include iguana, red-eared slider turtle, squirrel-sized Tamarin Monkey along with several exotic birds.²⁵

¹⁷ K.K. Karanth et. al., "Living with Wildlife and Mitigating Conflicts Around Three Indian Protected Areas" 52 *Environmental Management* 1320–1332 (2013). <https://doi.org/10.1007/s00267-013-0162-1>

¹⁸ NCRB (India), Number of reported criminal cases under the Indian Penal Code in 2022, by state (in 1,000s) Statista, <https://www.statista.com/statistics/632706/reported-criminal-cases-under-ipc-by-state-india/> (last visited January 21, 2025)

¹⁹ *Ibid.*

²⁰ *Supra* note 17 at 4052.

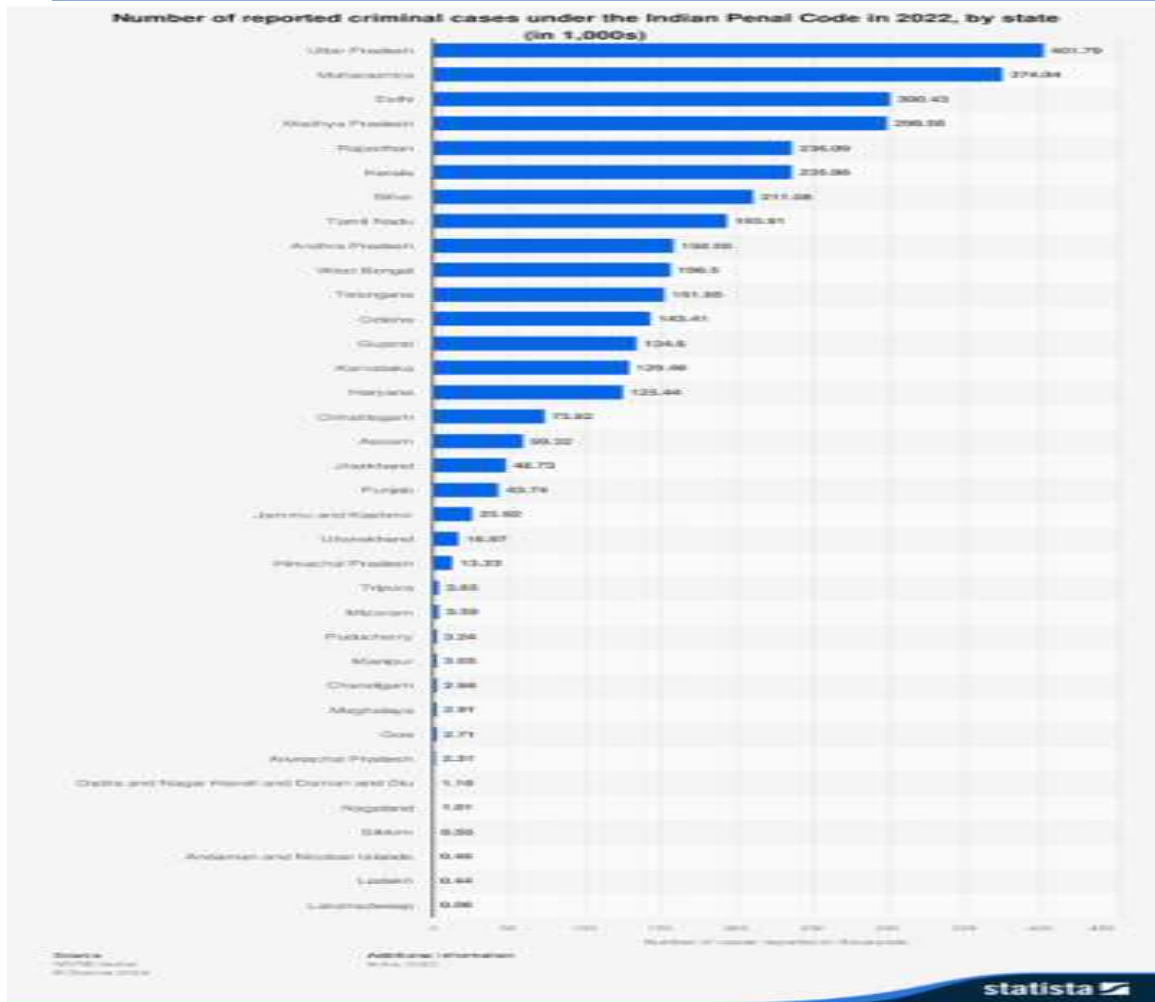
²¹ *Supra* note 2 at 1488.

²² *Ibid.*

²³ WCCB (2022), available at: www.wccb.gov.in

²⁴ TRAFFIC, Wildlife Crime: Disrupting International Wildlife Poaching and Trafficking Networks (2022) available at: www.traffic.org

²⁵ *Ibid.*



Poachers and smugglers use various techniques to smuggle these wildlife species across countries. Sometimes they bring the parts of the species in the form of finished products or paint them in order to hide the identity of the specie. Law enforcement authorities along with WCCB has been actively working to identify these offenders and arrest them. But still there is a need for more uniform laws and regional agreements between countries to combat these crimes. There are enforcement gaps and jurisdictional gaps which hinder these law enforcement agencies to arrest the criminals.

Major Challenges

1. Human coexistence: more than 60% of the population in India is residing near protected areas including sanctuaries and national parks. People residing in these areas are dependent upon nature for their livelihood and existence. These people form the majority who are involved in wildlife crime. These crimes have become a mode for their survival and income. Human-wildlife conflict leads to loss of crops and livestock and also deaths, therefore, people living in these regions try to hunt animals and become a part of wildlife smuggling.²⁶ These crimes have created a source of livelihood for them and there is a need for spreading awareness among people living in these regions regarding wildlife conservation and make them available with alternate sources of income.²⁷

²⁶ S. Gulati et. al., “Human casualties are the dominant cost of human-wild life conflict in India” 118 *Proc Natl Acad Sci USA* 8 (2013).

²⁷ R. J. Smith et. al., “Governance and the loss of biodiversity” 426 *Nature* 67–70 (2003). <https://doi.org/10.1038/nature02025>
 3850

2. **Shortage of workforce:** Another major reason for increase in wildlife crime is the shortage of workforce to tackle these crimes. further, there is a shortage of laboratories for conserving wildlife species and manpower to work in these laboratories. The government needs to establish more labs for the purpose of conserving wildlife and appoint more workforce in these labs. Moreover, more manpower is required to be appointed in sanctuaries and national parks to avoid these crimes.
3. **International politics:** these crimes being dynamic in nature become very difficult to be detected. Moreover, these crimes are also motivated by international politics which makes it more difficult to detect these crimes. Many exotic species are not mentioned in the current legislative framework making it easy for the criminals to commit these crimes. there is a need for revising these laws and bringing a new uniform legislation focusing on all these challenges and including within it all the exotic and alien species which are becoming of wildlife crimes.²⁸
4. **Unlicensed trade:** India is a hub for wildlife trade and the markets are flooded with people who are involved in unlicensed trade of wildlife. Such trade is being done openly in the Indian markets and by using spurious names, these traders are able to poach and traffic animals. Further several crimes are ignored because of seller's profit as well as buyer's charm.

Prevention approaches

Seeing the current scenario where poachers as well as traders are using various means and methods to commit wildlife crime, there is an urgent need to address this issue by using various scientific, managerial as well as technological approaches to tackle these crimes.

1. **Monitoring wildlife by using AI**

AI has now become a part of our everyday life and is being used in every field of work. India being an IT hub can develop and use an AI based monitoring system which can be used to monitor the movements of animals. This can help in tracing the animals in case of any wildlife crime.²⁹ These methods can help the law enforcement agencies to track the criminal and can help in solving cases of wildlife crime.

2. **Strengthening of laboratories**

There is need to set up more labs equipped with modern equipment to conserve wildlife species. More manpower should be appointed in these laboratories making it easier to keep a track on the wildlife species in an area.³⁰ More hospitals should be set in critical areas including National Parks and Sanctuaries for the treatment of wildlife and also to investigate wildlife crime incidents.

3. **New legislative framework**

There is a need for enforcing a new legislative regime to address the gaps relating to wildlife law. Although the current legislative frameworks are strict and robust still they are not able to combat wildlife crime. There is a further need for more regional collaboration between neighboring countries to tackle these wildlife crimes. A draft uniform legislation governing all the member countries can be enforced for addressing the enforcement and jurisdictional gaps.³¹

4. **Rehabilitation of exotic species**

Rehabilitation activities can be promoted by the government for conservation of wildlife. Endangered and exotic wildlife species can be introduced to their habitat.³² Extinct species can be reintroduced can be step

²⁸ R. Melkonian et. al., "The geographical patterns of symbi ont diversity in the invasive legume *Mimosa pudica* can be explained by the competitiveness of its symbionts and by the host genotype" 16(7) *Environ. Microbiol.* 2099–2111 (2013). <https://doi.org/10.1111/1462-2920.12286>

²⁹ *Supra* note 28 at 2099.

³⁰ *Supra* note 1 at 1629.

³¹ *Supra* note 28 at 2099.

³² *Ibid.*

towards towards eco-structuring and conserving the biodiversity. Project Cheetah is one such example of rehabilitation where wild cat was imported from Africa into Kuno National Park, MP, for restricting the ecosystem.³³

Conclusion

Despite having several legislations as well as projects for tackling wildlife crime there is a need a for a more robust legislation for conserving wildlife. Wildlife crime though it has reduced in the past years, still the numbers are alarming and need to be addressed. There are several enforcement gaps and jurisdictional gaps which make the commitment of these crimes easy. These crimes have become more organized and sophisticated and are mostly committed across countries.

To tackle these transboundary wildlife crimes there is a need for regional collaboration between countries, especially neighboring countries to conserve the biodiversity. Though there are international treaties and agreements including CITES and SAWEN, but still there is a need to take stricter measures and signing more bilateral or multilateral agreements making it easy for the law enforcement agencies to trace and arrest the criminals.

Scientific approaches also need to be addressed and included while investigating wildlife crimes. Use of modern technological advancements such as AI operated monitoring systems or drones can help in detecting wildlife crime and identifying the criminal. Since these crimes have become more organized and it is now very difficulty to track the criminals, use of forensic techniques can be done to minimize these crimes.

India is a country with rich biodiversity and destruction of this biodiversity can have hazardous effects. These crimes can have effect on wellbeing of humans and wildlife. There is a need for critical attention towards these crimes and conserve the wildlife species who are on the verge of extinction. Through various scientific and other measures these crimes can be reduced leading to a health eco-system and a long healthy life for humans on Earth.

References

1. MOSPI, *Statista* (2024): Overview of wildlife sanctuaries in India, categorized by state. [Statista Link](#) (Accessed Jan 20, 2025).
2. Verma, A., & Rawat, S. (2020). Analysis of protected areas and biodiversity conservation in India. *Current Science*, 119(5), 785–793. [DOI:10.18520/cs/v119/i5/785-793](#).
3. Fleck, A. (2024). Data on the most trafficked animals globally. *Statista*. [Seizure Records by Species](#).
4. Fleck, A. (2024). Pangolin trafficking hotspots. *Statista*. [Pangolin Trafficking Hotspots](#).
5. Phelps, J., et al. (2016). Examining demand for wildlife products in global markets. *Biological Conservation*, 201, 268–274. [DOI:10.1016/j.biocon.2016.07.013](#).
6. Rana, A.K., & Kumar, N. (2023). Challenges in combating wildlife crime in India. *Biodiversity Conservation*, 32(5), 1473–1491. [DOI:10.1007/s10531-023-02577-z](#).
7. Chandran, A.R. (2023). Wildlife crime in India: A multifaceted analysis. *ILE Monthly Review*, 1(2), 38–45.
8. Anagnostou, M., & Doberstein, B. (2022). Links between illegal wildlife trade and organized crime. *Ambio*, 51, 1615–1631. [DOI:10.1007/s13280-021-01675-y](#).
9. Wyatt, T., et al. (2020). Criminological perspectives on wildlife trafficking. *Crime, Law and Social Change*, 73(1), 67–89. [DOI:10.1007/s10611-019-09884-2](#).
10. UNODC (2020). *World Wildlife Crime Report 2020*. [PDF](#).
11. Nishant, K., et al. (2017). Forensic techniques in wildlife crime investigations. *Journal of Forensic Science and Criminology*, 5(4), 402.
12. Iyengar, A. (2014). DNA-based methods for wildlife forensics and challenges. *Investigative Genetics*, 5(1), 3. [DOI:10.1186/2041-2223-5-3](#).

³³ *Supra* note 1at 1629.

13. Ogden, R., & Linacre, A. (2015). Application of forensic science in combating wildlife crime. *Forensic Science, Medicine, and Pathology*, 11(2), 221–230. [DOI:10.1007/s12024-015-9666-8](https://doi.org/10.1007/s12024-015-9666-8).
14. Gupta, S., et al. (2022). Role of AI in monitoring wildlife trafficking networks. *Nature Communications*, 13, 1234. [DOI:10.1038/s41467-021-27534-4](https://doi.org/10.1038/s41467-021-27534-4).
15. CITES (2016). Reviews the application of forensic technologies in enforcement globally. [CITES Report](#).
16. WCCB (2022). Overview of India's wildlife crime enforcement strategies. [WCCB Website](#).
17. TRAFFIC (2022). Global perspective on poaching and trafficking enforcement. [TRAFFIC Website](#).
18. Smith, R.J., et al. (2003). Governance failures contributing to biodiversity loss. *Nature*, 426, 67–70. [DOI:10.1038/nature02025](https://doi.org/10.1038/nature02025).
19. Duffy, R., et al. (2019). Evaluating governance measures against poaching. *Conservation Biology*, 33(4), 823–833. [DOI:10.1111/cobi.13324](https://doi.org/10.1111/cobi.13324).
20. Symes, W.S. (2020). Combined impacts of deforestation and wildlife trafficking. *Nature Communications*, 9(1), 4052. [DOI:10.1038/s41467-018-06579-2](https://doi.org/10.1038/s41467-018-06579-2).
21. Scheffers, B.R., et al. (2019). Global biodiversity impacts of wildlife trade. *Science*, 366(6461), 71–76. [DOI:10.1126/science.aav5327](https://doi.org/10.1126/science.aav5327).
22. Gulati, S., et al. (2013). Human casualties in human-wildlife conflict in India. *Proceedings of the National Academy of Sciences USA*, 118.
23. Barua, M., et al. (2013). Socio-economic dimensions of human-wildlife conflict in India. *Environmental Research Letters*, 8(3), 035007. [DOI:10.1088/1748-9326/8/3/035007](https://doi.org/10.1088/1748-9326/8/3/035007).
24. Karanth, K.K., et al. (2013). Mitigating conflicts around Indian protected areas. *Environmental Management*, 52(5), 1320–1332. [DOI:10.1007/s00267-013-0162-1](https://doi.org/10.1007/s00267-013-0162-1).
25. Sutherland, W.J., et al. (2020). Conservation interventions and their efficacy. *Nature Ecology & Evolution*, 4, 580–590. [DOI:10.1038/s41559-020-1157-2](https://doi.org/10.1038/s41559-020-1157-2).
26. Rosen, G.E., & Smith, K.F. (2010). Summarizing the global illegal wildlife trade. *PLoS Biology*, 8(1), e1000147. [DOI:10.1371/journal.pbio.1000147](https://doi.org/10.1371/journal.pbio.1000147).
27. Harrison, R.D., et al. (2016). The impact of illegal wildlife trade on ecosystems. *Biological Conservation*, 197, 219–230. [DOI:10.1016/j.biocon.2016.03.020](https://doi.org/10.1016/j.biocon.2016.03.020).